

CLAIM AMENDMENTS:

The following listing of claims will replace all prior versions and listings of the claims.

1. (Currently Amended) A telephone gateway device comprising:

a first memory device external to a processor, the first memory device storing one or more telecommunication protocol templates, each of the one or more telecommunication protocol templates including a plurality of virtual machine instructions to implement a telecommunication protocol using one or more finite state machines and template state data;

a second memory device internal to the processor, the second memory device to store a state table of one or more finite state machines; and

the processor having access to the first memory device, the second memory device and firmware, the firmware adapted to operate a virtual machine, and wherein the processor:

causes the virtual machine to read first virtual machine instructions of a first telecommunication protocol template from the first memory device;

executes the first virtual machine instructions to instantiate a first finite state machine and to store a first state table based on template state data associated with the first virtual machine instructions at the second memory device, wherein the first finite state machine and the first state table specify ~~at least a portion of~~ a first telecommunication protocol; and

implements the first telecommunication protocol using the first state table and the first finite state machine.

2. (Previously Presented) The telephone gateway device of claim 1, wherein the first telecommunication protocol includes at least one of a Session Initiation Protocol (SIP), a H.323 protocol, a STUN protocol, and a Dynamic Host Configuration Protocol (DHCP).

3. (Cancelled).

4. (Previously Presented) The telephone gateway device of claim 1, further comprising an input/output (I/O) port, and wherein the processor:

receives input via the I/O port;

determines a transition of the first finite state machine based on the input and the first state table; and

updates the first state table based on the transition.

5. (Previously Presented) The telephone gateway device of claim 1, wherein the first memory device further includes second virtual machine instructions selected from a second telecommunication protocol template to implement a second telecommunication protocol.

6. (Previously Presented) The telephone gateway device of claim 5, wherein the second telecommunication protocol includes at least one of a Session Initiation Protocol (SIP), a H.323 protocol, a STUN protocol, and a Dynamic Host Configuration Protocol (DHCP).

7. (Previously Presented) The telephone gateway device of claim 5, wherein the second telecommunication protocol template includes one or more second finite state machines.

8. -10. (Cancelled).

11. (Previously Presented) The telephone gateway device of claim 1, wherein the processor is linked to the first memory device via a data bus.

12. (Previously Presented) The telephone gateway device of claim 11, wherein the data bus is a serial bus.

13. (Previously Presented) The telephone gateway device of claim 11, wherein the data bus is a parallel bus.

14. (Previously Presented) A method of implementing a telecommunication protocol, the method comprising:

selecting a first telecommunication protocol template by a processor of a telephony gateway device, wherein the first telecommunication protocol template includes one or more virtual machine instructions executable by a virtual machine at the telephony gateway device to implement a first telecommunication protocol;

reading a first virtual machine instruction of the first telecommunication protocol template from a first memory device, wherein the first memory device is coupled to the processor via a bus;

initializing a first finite state machine using the first virtual machine instruction, wherein the first telecommunication protocol template includes first template state data defining a first template state of the first finite state machine;

storing the first template state at a second memory device of the telephony gateway device in a first state table, wherein the second memory device is internal to the processor;

receiving an input at the processor via a telephony call;

determining, by the virtual machine, an updated template state of the first finite state machine based on the first state table and the input; and

storing an updated first state table at the second memory device, the updated first state table specifying the updated template state.

15. (Previously Presented) The method of claim 14, wherein the first telecommunication protocol includes one of a Session Initiation Protocol (SIP), a H.323 protocol, a STUN protocol, and a dynamic host configuration protocol (DHCP).

16. (Cancelled).

17. (Previously Presented) The method of claim 14, wherein the first template state data identifies transitions of the first finite state machine.

18. (Previously Presented) The method of claim 14, further comprising:
receiving a request at the processor to implement a second telecommunication protocol;
reading a second virtual machine instruction from the first memory device;
initializing a second finite state machine using the second virtual machine instruction;
and
storing a second template state of the second finite state machine at the second memory device in a second state table.

19. (Previously Presented) The method of claim 18, wherein the second telecommunication protocol includes one of a Session Initiation Protocol (SIP), a H.323 protocol, a STUN protocol, and a dynamic host configuration protocol (DHCP).

20. - 21. (Cancelled).

22. (Previously Presented) The method of claim 18, wherein the second template state is determined based on the first finite state machine.

23. (Previously Presented) The method of claim 18, further comprising determining a transition of the first finite state machine based on the second finite state machine.

24. – 46. (Cancelled).

47. (Previously Presented) The telephone gateway device of claim 1, wherein the first memory device has a larger storage capacity than the second memory device.

48. (Previously Presented) The telephone gateway device of claim 1, wherein the first memory device is a FLASH memory device.

49. (Previously Presented) The telephone gateway device of claim 48, wherein the second memory device is a RAM memory device.

50. (Currently Amended) The telephone gateway device of claim 5, wherein the processor:

causes the virtual machine to read the second virtual machine instructions of the second telecommunication protocol template from the first memory device in response to a request to implement the second telecommunication protocol;

executes the second virtual machine instructions to instantiate a second finite state machine and to store a second state table based on template state data associated with the second virtual machine instructions at the second memory device, wherein the second finite state machine and the second state table specify at least a portion of the second telecommunication protocol; and

implements the second telecommunication protocol using the second state table and the second finite state machine.

51. - 55. (Cancelled).

56. (Currently Amended) A telephone gateway device, comprising:

- a first memory device coupled to a processor by a bus, the first memory device storing one or more telecommunication protocol templates, each of the one or more telecommunication protocol templates including a plurality of virtual machine instructions to implement a telecommunication protocol using one or more finite state machines;
- a second memory device integral with the processor, the second memory device to store state data related to the one or more finite state machines during implementation of the telecommunication protocol;
- the processor having access to the first memory device and the second memory device, the processor configured to:
 - read first virtual machine instructions from the first memory device, the first virtual machine instructions selected from a first telecommunication protocol template to implement a first telecommunication protocol;
 - receive first template state data specifying an initial state of a [[the]] first finite state machine; and
 - execute the first virtual machine instructions using the first template state data to initialize the first finite state machine and to store an initial state table of the first finite state machine at the second memory device.

57. (Previously Presented) The method of claim 14, further comprising, in response to the input, sending a message to a called party, wherein the updated template state is determined based on a response to the message.

58. (Previously Presented) The method of claim 57, wherein, when no response to the message is received from the called party, the updated template state comprises a fast busy tone state.

59. (Previously Presented) The method of claim 57, wherein, when the response to the message indicates that the telephony call has been answered, the method further comprises executing an init vocoder instruction.

60. (Previously Presented) The method of claim 57, wherein, when the response to the message indicates that the telephony call has been answered, the updated template state comprises a voice state.

61. (Currently Amended) The telephone gateway device method of claim 4, wherein the input is received via a call using the first telecommunication protocol.